

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION Unclassified			1b. RESTRICTIVE MARKINGS		
AD-A229 994			3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution is unlimited.		
4. PERFORMING ORGANIZATION REPORT NUMBER(S) USAFSAM-TP-87-8			5. MONITORING ORGANIZATION REPORT NUMBER(S)		
6a. NAME OF PERFORMING ORGANIZATION USAF School of Aerospace Medicine		6b. OFFICE SYMBOL (If applicable) USAFSAM/EDK		7a. NAME OF MONITORING ORGANIZATION	
6c. ADDRESS (City, State, and ZIP Code) Human Systems Division (AFSC) Brooks Air Force Base, Texas 78235-5301		7b. ADDRESS (City, State, and ZIP Code)		DTIC ELECTE DEC 18 1990 S B D	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION USAF School of Aerospace Medicine		8b. OFFICE SYMBOL (If applicable) USAFSAM/EDK		9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8c. ADDRESS (City, State, and ZIP Code) Human Systems Division (AFSC) Brooks Air Force Base, Texas 78235-5301		10. SOURCE OF FUNDING NUMBERS			
		PROGRAM ELEMENT NO. 86761F	PROJECT NO. ED93	TASK NO. 56	WORK UNIT ACCESSION NO. XX
11. TITLE (Include Security Classification) A Filing System for Aerospace Medicine Reprints					
12. PERSONAL AUTHOR(S) Clements, Thomas I.					
13a. TYPE OF REPORT Final		13b. TIME COVERED FROM 86/07 TO 86/12		14. DATE OF REPORT (Year, Month, Day) 1987, April 3	
15. PAGE COUNT 12					
16. SUPPLEMENTARY NOTATION					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB-GROUP	Indexing, cataloging, medical articles, aerospace medicine, File's (Records)		
05	02				
05	05				
19. ABSTRACT (Continue on reverse if necessary and identify by block number)					
<p>The medical literature is reviewed and descriptions given for various forms of filing systems useful in cataloging and filing medical reprints. The discussion mentions the use of direct and indirect access systems, the marginal punch-sort index, the card catalog index, and the computer-generated index. Coordinated and uncoordinated systems are described. The author gives the characteristics of a "good" filing system and recommends one for use, using a modified form of the American Board of Preventive Medicine topic list used in board certifying examinations.</p>					
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION Unclassified		
22a. NAME OF RESPONSIBLE INDIVIDUAL Thomas I. Clements, Col, MC, USA			22b. TELEPHONE (Include Area Code) 512/536-2844		22c. OFFICE SYMBOL USAFSAM/EDK

A FILING SYSTEM FOR AEROSPACE MEDICINE REPRINTS

Thomas I. Clements, M.D., M.P.H.

USAF School of Aerospace Medicine
Aerospace Medicine Branch (EDK)
Brooks Air Force Base TX 78235-5305

Telephone: (512) 536-2844

A FILING SYSTEM FOR AEROSPACE MEDICINE REPRINTS

T. I. Clements*

Did you know that Index Medicus lists more than 4,000 journals and catalogs 250,000 new articles each year? A community hospital library usually has over 300 medical journals in its files, and medical centers average over 1,500 separate journals for reading, filing, and forgetting (1). Most practitioners certainly don't know this, but know that there is too much regularly published information for any single group or business to monitor. How much is related to aerospace medicine is anybody's guess.

In the author's opinion, a good organization of medical information is the single most important requirement for remembering it. Likewise, a systematic organization for saving reprints is most important in retrieving the information when one can't remember it. This author shudders to think about all the information that he has read and used but did not systematically save.

The emergency medicine discipline is characterized by wide disparity of diseases, patients, procedures, and concepts. Thus, a letter by Dailey (2) to the editor of the Journal of the American College of Emergency Physicians was a brilliant light in the dark abyss of this author's organization of emergency medicine literature. Dailey merely elaborated and revised his reprint filing system which he had published in the same journal earlier (3).

What are the characteristics of a good reprint filing system? Tyznik (1) lists four: terminology should be consistent and unambiguous; potential for

*Resident in Aerospace Medicine, Aerospace Medicine Branch, USAF School of Aerospace Medicine, Brooks AFB, Texas

This paper represents the views of the author and does not necessarily reflect the official opinion of the United States Department of the Air Force.

expansion and subcategorization should be unlimited; retrieval and refiling should be rapid; and the system should be simple and inexpensive. St. Clair (4) adds that a system should be adaptable to include new interests; should require little paperwork to maintain; and should be easy to weed. (Note: This author's emergency medicine filing system has not been adaptable to aerospace medicine.)

THE SYSTEM

There are as many systems designed to fulfill the above requirements as there are individuals to use them. However, DeBell and Costello (5), a medical librarian and a nurse, categorize all systems into three basics: random, indirect, and direct access. Random access systems include alphabetically filed or subject-filed reprints. Retrieval is based on memory. It is easy to start, but inefficient to retrieve. An indirect index is one in which one topic could be filed alphabetically by author, title, or chronologically, necessitating multiple locations. The indirect access system includes three major forms: marginal punch-sort index, the card catalog index, and a computer-generated index. The direct access index uses one term and only one term for one concept; thus, all reprints on one topic will be at one location. DeBell and Costello recommend the use of a direct access system because of its simplicity, expandability, and ease of starting and use. Alarcon (6), on the other hand, feels that any system that files a subject under only one heading is limited. In order to decide under just which heading one files an article, one is forced to make an arbitrary decision. He classifies filing systems using only one heading (whether alphabetic, chronologic, or topical) as "uncoordinated." Conversely, those systems in which each reference is entered under two or more headings are "coordinated." McMicken (7) outlines a classic example of an uncoordinated system, while Pearson (8) describes a coordinated one.



Dist

Special

A-1

ides

and/or

THE INDEX

The whole system depends on the index. The index creation is critical. In an extensive review of the literature on the subject of creating a filing system, only three forms of index were revealed. Those using 'subject' were most prevalent; those using 'authors' were mentioned; and Alarcon described in detail a system using 'key words.' The creator of his/her own system must choose. This author's recommendation follows later.

THE ORGANIZATION

The organization of the index is the most important part of any system. Creager (9) and others have described indexes based on numeric or alphabetic organization. These seem to be simple and totally expandable. Fuller (10) describes one of the earliest systems used. It belonged to Dr. Maxwell Wintrobe and included over 1,500 topics (11). A reference card form of index has been mentioned as well by Pearson and others. Creager queried directors of family practice residencies and got a measure of popularity of the three organizations mentioned in the preceding paragraph. Of the 304 respondents, 47% used alphabetical organization in their medical filing systems, while 51% used numeric organization. The remaining 2% used reference cards. A chronological organization could also be used, but would be limited by the user's memory.

THE SUBJECT

When dealing with a subject form of index, the author ran into a wall of ignorance. There seemed to be as many ways to classify subjects as there are people. A table of contents of a textbook has been recommended by Gaeke, Debell, and Singer (12). It is relatively comprehensive and inclusive; it is expandable; and, importantly, it is available. If one needs to decide where to

file an article that doesn't apparently fit, all one needs to do is look in the index of the book for the subject and find in which chapter it is included (thus identifying the subject in one's file in which to include it).

Slocum (13) and Rakel (14) had a unique approach. They recommended using a billing code approach for family practice subjects, The International Classification of Health Problems in Primary Care.

Not previously mentioned, but certainly authoritative, would be the use of a subject list published by an American board certifying agency. In fact, the American Board of Preventive Medicine (ABPM) publishes a list of topics (shown at the end of this article) that may be covered for aerospace medicine on their certifying exam. This list, published in March 1986, is inclusive, expandable and well organized.

One glaring deficiency in most systems, particularly those using textbooks, is the absence of administrative subjects, attested to by this author's use of Dailey's filing system. Most day-to-day retrieval dealt with Dailey's section covering administration. This section included continuing medical education, community facilities and resources, regulations from all sources, and concepts. These subject areas did not integrate into textbook subjects very well, yet all were essential to practice. Many administrative subjects are included in the ABPM list.

THE PROPOSAL

One must decide first which of the many ways he/she wants to combine all of the data. One may choose a system using a computer, using index cards, or even using a scrapbook, as proposed by Longmore (15). A paper filing system, whose index could easily be computerized, is best, in this author's opinion. It is "uncoordinated" in Alarcon's sense, and "direct" in DeBell and Costello's sense.

Fawcett (16) advises the following: "First, recognize the fact that your personal filing system will never be current. Second, define your criteria for including items in the file." This is pretty open-ended, for this author tends to collect all the articles out of Aviation, Space, and Environmental Medicine even if they hold no current interest. In order to file the articles, the abstract must be read or the article must be skimmed for content. The article is then available for some colleague when needed for information or bibliographical data.

Fawcett's advice continues, "Third, define your criteria for removing papers from the file." This was required in order to separate the aerospace and environmental subjects from the emergency medicine file. "Fourth, attempt to establish the physical system that will be fastest to maintain." In other words, computers versus papers, versus cards, etc. Finally, "...employ a standardized set of headings and apply basic indexing principles."

Keeping these principles and steps in mind, the Aerospace Medicine Reprint Index provided at the end of this article was developed. The ABPM content areas were used primarily, with an expanded administrative section patterned after Dailey's emergency medicine administration. Next, Congdon's (17) steps were taken to heart using labels on folders, which allowed for easy reference. Hanging file folders of the 1/3-cut type (which are made by several companies, including Sparco and Pendaflex) were used for the section dividers because they are strong and hold reprints without sliding under dividers or flopping large piles of files back and forth in the file drawer.

A numeric organization was used because that is the way this author thinks and organizes. This system meets all the characteristics required. Terminology is consistent; expansion and subcategorization are unlimited; retrieval and

refiling are rapid; it obeys the "KISS" principle (Keep It Simple, Stupid); it is adaptable to new interests in aerospace medicine; it requires little paper-work to maintain; and it will be easy to weed.

A final word about this reprint system. This author reads through the journals and rips out all aerospace medicine-related articles. (This is not encouraged if it isn't your own journal.) If the start of one article is on the back of another, one of the pages can be photocopied. Then the whole article can be stapled together. After completely going through the journal(s) at one sitting, the index is used to label the upper right corner of the first page of each article with the section, subject, and subcategory, if needed. Then the articles may be set aside for reading at a later time. If the reader is in the teaching business, he/she may want to stamp the article's front page with their name also at this point. After the article has been read, or the abstract has been read and it has been determined that the article is not of interest to the reader, it can either be tossed into the 'file' box for a secretary to easily file, or the reader may file it himself. (This author doesn't permit anyone else into his files!) Though misfiling or catastrophic dumping of the files could be corrected by anyone with a copy of the index, the risk of having to go through the tedium of refiling is too great. The reader also might note that computerizing the index and using an alphanumeric search for the specific article would be easily achievable. The author may try this in the future if the file becomes so extensive that manual searching becomes laborious.

This system may not work for everyone. Please try it, improve on it, and let the author know your results. Good luck and happy filing!

REFERENCES

1. Tyzniaak, J.W. Taming the medical literature monster. *Postgrad. Med.* 1983; 74(1):77-80.
2. Dailey, R.H. Updated reprint filing system for the emergency physician. *JACEP* 1976; 5(11).
3. Dailey, R.H., et al. A reprint filing system for emergency physicians. *JACEP* 1973; Nov/Dec 414-415.
4. St. Clair, H.D. A personal filing system for medical literature. *Del. Med. J.* 1982; 54(5):295-297.
5. DeBell, C.M. and Costello, M.K. *J. Nurs. Adm.* 1985; 15(12):38-42.
6. Alarcon, R. A personal medical reference index. *Lancet* 1969; 1:301-305.
7. McMicken, D. Emergency medicine filing system. *Ann. Emerg. Med.* 1980; 9(9):471-475.
8. Pearson, L.D. A cross-indexing system for a personal reference file. *J. Am. Vet. Med. Assoc.* 1970; 157(3):344-348.
9. Creager, R.J. Medical literature filing systems in family practice residency programs. *J. Fam. Pract.* 1983; 16(3):621-624.
10. Fuller, E.A. A system for filing medical literature. *Ann. Intern. Med.* 1968; 68:684-693.
11. Gaeke, R.F., and Gaeke, M.E.B. Filing medical literature. *Ann. Intern. Med.* 1973; 78:985-987.
12. Singer, K. Where did I see that article. *JAMA* 1979; 241(14):1492-1493.
13. Slocum, H.E. Personal medical reference files for family physicians. *J. Fam. Pract.* 1977; 4:593-595.
14. Rakel, R.E. Indexing in office practice. *Cont. Ed. Fam. Phys.* 1975; 9(1):30.

15. Longmore, J.M. Keeping up to date. Br. Med. J. 1979; 1:1547-1548.
16. Fawcett, P.J. Personal filing systems revisited. Ear Nose Throat J. 1978; 57:82-5, 89.
17. Congdon, J.E. and McPherson, I.E. The care and feeding of your medical file. Milit. Med. 1984; 149:293-194.

AEROSPACE MEDICINE - 1986
ABPM CONTENT AREAS

These topics are those that may be covered by a given examination.
The topics will be updated from time to time.

History of Aerospace Medicine

Basic Science

Anatomy
Pathology
Pharmacology
Biophysical Chemistry
Physiology
Physics

Applied Preventive Medicine

Environmental Health
Crew Health Maintenance
Air Carrier Public Health
 Sanitation and Hygiene
 International Travel
Occupational Medicine
Toxicology

Biomedical Engineering

Human Factors in Design
Instrumentation
Acceleration
Vibration
Impact
Escape from Aircraft
Survival in Extreme Environments
Bioacoustics
Radiation

Applied Physiology

Cardiopulmonary Physiology

 Respiration
 Circulation
 Hypoxia
Pressure Changes
 Decompression
 Barotrauma
Protection
 Cabin Pressurization
 Pressure Suits
 Oxygen Equipment
Spatial Orientation
Visual Aspects of Flight
Null Gravity Fields

Operational Aerospace Medicine

Standards and Evaluation

 Military
 Civil
Patient Transportation
Aircraft Accident Control
 Investigation
 Identification
Forensic Pathology
Airport Disaster Management

Clinical Aerospace Medicine

Otorhinolaryngology
Ophthalmology
Neurology
Psychiatry
Internal Medicine
 Cardiovascular
 Respiratory
 Gastro-intestinal
 Musculo-skeletal
 Metabolic and Degenerative
Hyperbaric Medicine
Space Medicine
Miscellaneous

Administrative

Legislation and Regulation
Organization

AEROSPACE MEDICINE REPRINT INDEX

- I. HISTORY OF AEROSPACE MEDICINE
- II. BASIC SCIENCE
 - A. Anatomy
 - B. Pathology
 - C. Pharmacology
 - D. Biophysical Chemistry
 - E. Physiology
 - F. Physics
- III. APPLIED PREVENTIVE MEDICINE
 - A. Environmental Health
 - B. Crew Health Maintenance
 - C. Air Carrier Public Health
 - 1. Sanitation and Hygiene
 - 2. International Travel
 - 3. Immunization
 - D. Occupational Medicine
 - E. Toxicology
- IV. BIOMEDICAL ENGINEERING
 - A. Human Factors in Design
 - B. Instrumentation
 - C. Acceleration
 - D. Vibration
 - E. Impact
 - F. Escape from Aircraft
 - G. Survival in Extreme Environments
 - 1. Hypothermia
 - 2. Hyperthermia
 - 3. Jungle
 - 4. Sea
 - 5. Arctic
 - H. Bioacoustics
 - I. Radiation
- V. APPLIED PHYSIOLOGY
 - A. Cardiopulmonary Physiology
 - 1. Respiration
 - 2. Circulation
 - 3. Hypoxia
 - B. Pressure Changes
 - 1. Decompression
 - 2. Barotrauma
 - C. Protection
 - 1. Cabin Pressurization
 - 2. Pressure suits
 - 3. Oxygen Equipment
 - D. Spatial Orientation
 - E. Visual Aspects of Flight
 - F. Null Gravity Fields
- VI. OPERATIONAL AEROSPACE MEDICINE
 - A. Standards and Evaluation
 - 1. Military
 - a. Army
 - b. Air Force
 - c. Navy
 - 2. Civilian
 - B. Patient Transportation
 - C. Aircraft Accident Control
 - 1. Investigation
 - 2. Identification
 - 3. Forensic Pathology
 - 4. Airport Disaster Management
- VII. CLINICAL AEROSPACE MEDICINE
 - A. Otorhinolaryngology
 - B. Ophthalmology
 - C. Neurology
 - D. Psychiatry
 - E. Internal Medicine
 - 1. Cardiovascular
 - 2. Respiratory
 - 3. Gastrointestinal
 - 4. Musculoskeletal
 - 5. Metabolic and Degenerative
- VIII. ADMINISTRATIVE
 - A. Legislation and Regulation
 - B. Organization
 - 1. Staffing
 - 2. Funding and Grants
 - 3. Budgeting
 - 4. Facility Design
 - 5. Equipment Design
 - C. Education and Training
 - 1. Continuing Education
 - 2. Residency
 - 3. Other Health Professions
 - D. Concepts and Systems
 - E. Community
 - 1. Committees
 - 2. Aerospace Professional Organizations